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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/075,285	02/15/2002	Seung-Woo Lee	6192.0235.AA	9035

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EXAMINER

LEFLORE, LAUREL E

ART UNIT	PAPER NUMBER
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2673

DATE MAILED: 12/10/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/075,285

Applicant(s)

LEE ET AL.

Examiner

Laurel E LeFlore

Art Unit

2673

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 September 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) 13-21 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,7 and 8 is/are rejected.
- 7) ☒ Claim(s) 3-6 and 9-12 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 February 2002 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election with traverse of claims 1-12 in the reply filed on 13 September 2004 is acknowledged. The traversal is on the ground(s) that "the search and examination of the entire application could be made without serious burden". This is not found persuasive because the two inventions have acquired a separate status in the art based on their recognized divergent subject matter, as shown by their different classification.

The requirement is still deemed proper and is therefore made FINAL. Claims 13-21 are hereby withdrawn from consideration

Drawings

1. Figure 1 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.121(d)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: Fig. 2. Corrected drawing sheets in compliance with 37 CFR 1.121(d), or

amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1, 2, 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chen 5,648,793 in view of Jung 5,828,368.

5. In regard to claim 1, Chen discloses a liquid crystal display (LCD). See column 1, lines 6-7 disclosing, "The present invention is related to a method of driving a matrix liquid crystal display". It is inherent in a liquid crystal display that there is some type of timing controller for receiving external image data and a data driver for converting the image data and outputting the same because without such features, the display would not be able to function in displaying an image. Although Chen does not specifically

disclose these inherent features, evidence of such a timing controller and data driver can be seen in figures 5 and 7, which depict timing diagrams including data. Chen further discloses the timing of gate signals which corresponds to "information signal to be impressed on the corresponding liquid crystals" in column 1, lines 28-36.

Chen further discloses a gate driver for sequentially applying both a first gate-on voltage and a second gate-on voltage to a same gate line, wherein the first gate-on voltage is to drive a previous line being most adjacent to and having the same polarity as a present line, and the second gate-on voltage is to drive the present line. See figure 5 and column 3, lines 38-42, disclosing, "According to this invention, the control signal for each pixel has two pulses. For instance, the control signal on G1 has one pulse during T1 and another pulse at T3. The function of the T1 pulse is to precharge the intended signal at T3". Further note in figure 3 that the pulse at T3 is used as a precharge pulse for G3. Further see column 3, lines 51-53 disclosing, "the polarities of the signal data impressed during odd and even time intervals are opposite". Note that of the gate lines having the same polarity (either odd or even), G1 and G3 (for example) are gate lines most adjacent to each other. Thus, an LCD panel is first charged with the first gate-on voltage supplied from the gate driver, and second charged with the second gate-on voltage, wherein the LCD panel displays the image data received from the data driver during the second charging.

Chen does not disclose that the timing controller outputs a vertical sync start signal based on a data-enable signal having an irregular output interval to control output

of the image data, the vertical sync start signal having a generation interval associated with a blank interval of the data-enable signal. Chen is silent as to how data is enabled.

Jung discloses an invention in which the timing controller outputs a vertical sync start signal based on a data-enable signal having an irregular output interval to control output of the image data. See column 1, lines 6-9, disclosing, "The present invention relates to a start pulse vertical signal generator using a data enable signal for precharging, and more particularly to a start pulse vertical generator which increases the operating speed of a gate." Further not the irregular output interval of the data enable signal, DE, depicted in figure 8. Jung further depicts in figure 8 that the vertical sync start signal (CPV) has a generation interval associated with a blank interval of the data-enable signal. This is disclosed in further detail in column 4, lines 38-48. See also column 3, lines 5-15, disclosing, "Also to achieve the above-mentioned object, according to the preferred embodiment of the present invention, a gate driving method of a TFT LCD, comprising: counting a first number of clock pulse vertical (CPV) signals during a BLANK section of a data enable signal delayed by at least one period; saving the count value of the counted number of CPV signals; counting a second number of CPV signals from the start of another BLANK section of the data enable signal delayed by at least one period; and generating a start pulse vertical (STV) signal when the second number of CPV signals counted equals the saved count value."

Jung teaches this method in column 2, lines 56-59, disclosing, "it is an object of the present invention to provide a start pulse vertical generator in which the BIOS does not need to be setup by generating a pre-STV signal using a data enable signal".

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the invention of Chen by having the timing controller output a vertical sync start signal based on a data-enable signal having an irregular output interval to control output of the image data, the vertical sync start signal (CPV) has a generation interval associated with a blank interval of the data-enable signal, as in the invention of Jung. One would have been motivated to make such a change since Chen does not disclose a method of supplying a vertical sync start signal or data enable, both of which are necessary for the operation of an LCD, and since Jung teaches such a method "increases the operating speed of a gate" and provides a vertical start pulse in which the BIOS does not need to be setup.

6. In regard to claim 2, Chen in view of Jung discloses that the one vertical sync start signal comprises a signal for generating the first gate-on voltage and a signal for generating the second gate-on voltage. See rejection of claim 1, which discloses the combination of the one vertical sync signal of Jung and the first and second gate-on voltages of Chen. Also note that the one vertical sync signal of Jung is used to generate a precharge voltage (first gate-on voltage).

7. In regard to claim 7, see rejection of claim 1. Chen further discloses an apparatus for driving an LCD, which includes an LCD panel having a plurality of data lines and gate lines (as depicted in figure 6). Chen further discloses charging a specific pixel by (1) first charging the data of a pixel adjacent to the specific pixel and having the same polarity as the specific pixel to change the polarity of the corresponding pixel, and

(2) second, charging the data of the specific pixel. Note the depiction of such polarities in figures 4B and 4C, which are two embodiments of Chen's invention.

8. In regard to claim 8, see rejection of claim 2.

Allowable Subject Matter

9. Claims 3-6 and 9-12 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

10. The following is an examiner's statement of reasons for allowance: The particular configuration of the first and second switches and memory section, as recited in claims 3 and 9, in combination with the other limitations in the respective claims and their base claims 1 and 7, are not shown or suggested by the prior art.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Yamashita et al. 6,744,417 B2 discloses an invention in which a precharge pulse is generating in a horizontal blanking period and is followed by video signals of opposite polarities.

Son et al. 6,693,618 B2 discloses an invention in which first and second gate-on voltages are applied.

Song 2002/0075212 A1 discloses an invention in which gate lines are supplied with first and second gate-on voltages.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Laurel E LeFlore whose telephone number is (703) 305-8627. The examiner can normally be reached on Monday-Friday 8-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bipin Shalwala can be reached on (703) 305-4938. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

LEL

LEL
6 December 2004


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